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ABSTRACT

The choice of college major by black college students was studied in 1982, and various theories about the choice of major were evaluated. The study group consisted of 2,090 college juniors and seniors attending eight four-year colleges that were primarily located in the South Atlantic region. Five of the institutions were predominantly black and three were predominantly white. Students completed a questionnaire that covered their early childhood, family, elementary and secondary school experiences, educational and occupational values and expectations, and major field choice and changes in major. While 13 majors were selected by the study population, for purposes of regression analysis, college major was tabulated as either (1) biological, natural, and technical sciences or (2) business and economics, or (3) education, social work, nursing, social sciences, and other. The findings suggest that choosing a college major is a process for most black students that begins long before the point of college entry. Black students' choice of a college major was primarily influenced by subjective factors, once family background and more objective factors were taken into consideration. The status of sex, occupational expectations, and career interests were the most important influences for the selection of a major. (SW)

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Black College Students and Factors Influencing Their Major Field Choice

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Black College Students and Factors Influencing Their Major Field Choice

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March, 1984

FOREWORD

The Southern Education Foundation and the family philanthropies which preceded it have had a special and continuing interest in the education of black Americans for more than a hundred years. The Foundation has been concerned particularly with programs aimed at increasing and improving higher education opportunities for blacks in the South.

In April, 1974, the SEF Board of Directors established a special project, the Higher Education Program, to address issues which were surfacing as a result of the then Adams v. Richardson case. Under this higher education component, the Foundation supported coalitions formed by citizens to monitor state desegregation plans, sponsored conferences and workshops, published papers, monographs and documents, and awarded general grants which focused specifically on achieving equity in higher education in the ten states affected by the Adams case.

In September, 1978, the Higher Education Program proposed concentrating a major portion of its allocation on a Research Task Force which was formed to plan a research agenda for the Foundation and to commission research projects. This body of six educators has commissioned over 20 studies since its inception; this document is presented as part of the Higher Education Program Research Series. Other publications which are part of the series are listed at the end of this report and are available to the public for $5.00 each.

SEF has been able to expand its Higher Education Program as a result of receiving a grant in July, 1983 from the Ford Foundation; the publication of this report is made possible by the grant.

A list of other Foundation publications may be obtained by writing to the Southern Education Foundation.

Thank you.

SOUTHERN EDUCATION FOUNDATION
811 Cypress Street, N.E.
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Chapter I

Introduction

A major issue in the mid and late 1970s on the nation's higher education agenda for minorities was the access and retention of these students to U.S. four-year colleges and universities. More recently, interest in the internal conditions and experiences of black students in higher education has been in their college major field choice, and their access and retention in various majors within higher education. One reason for the recent focus on students' college major choice and career orientations is that choosing a college major and a career are just as consequential for students as their decision to go to college or to attend a certain type of college (Werts, 1966; Lederer, 1983). More importantly, making profitable major field and career investment decisions are especially critical for today's college students, given the increase in higher education cost and the decrease in student financial aid and job opportunity.

Data presented in Table 1 for B.A. recipients show that in 1978 and 1982, investments in some major fields (i.e., engineering, computer science, physical and earth sciences) yielded higher income returns and employment than other less competitive majors (humanities, social sciences). Also, recent data by Trent (1983) indicated that blacks and females were less likely to obtain their B.A. degrees in engineering, mathematics, and the computer sciences than whites and males. However, these minority groups remain overrepresented among B.A. degree recipients in education, the social sciences and other less competitive majors

Table 1

Recent Starting Salary and Unemployment Data
by Major Field for B.A. Degree Recipients

Major Fields	1978 Salary	1982 Salary	1978 Unemployment
Humanities	$9,000	$15,396	10.7
Education	9,500	N/A	4.1
Biological Scis.	9,800	16,500	10.5
Social Work	10,000	N/A	6.0
Chemistry	10,800	21,012	3.0
Social Sciences	10,875	15,432	9.3
Mathematics	11,400	21,324	0.0
Physical & Earth Scis.	11,500	23,760	2.7
Nursing*	12,600	17,568	2.6
Engineering	15,500	25,128	5.0
Economics	13,200	18,516	8.8
Business/Management	13,300	17,724	3.2
Accounting	13,700	18,540	2.5
Computer Sci.	N/A	22,896	N/A

Sources: 1978 Data from Labor Force Status of Recent College Graduates. NCES.
1982 data from College Placement Council Salary Survey 1982-1983.

*1982 Salary data for nurses from National Survey of Hospital and Medical School Salaries. University of Texas Medical Branch.

relative to majority groups. Thus, part of the disadvantage that minorities and women experience in educational and occupational attainment may be attributed to the difference in their major field choice and career aspirations (Angle and Wissman, 1981; Herzog, 1982; Rosenfeld, 1980; Lederer, 1983).

More research on the major field choice of black college students is needed, given the importance of major field choice for career attainment and its potential for reducing or increasing racial disparities in occupational attainment. This study is therefore designed to assess factors that determine the major field choice of black college students. Previous inquiries about the major field choice of race and sex groups have been primarily descriptive. These inquiries have presented data on how various groups have been distributed in college majors and the extent to which these distributional patterns have changed over time (Thomas, 1980; Trent, 1983; Lederer, 1983; Brown and Stent, 1977). In addition, a limited number of more detailed investigations of students' major field choice and vocational aspirations have been conducted. Two of these studies employed economic theory in attempting to explain students' major field choice. One study by Koch (1972) tested the hypothesis that students choose undergraduate majors which afford them the highest economic returns from their educational investments.

Koch (1972) used cross-sectional data on income by major field and compared these data with student enrollment data in various major fields.

He found that students' major field choice was significantly related to the labor market value associated with various majors. His findings also showed that accounting, mathematics, and economics had higher income returns and higher student enrollment rates than education, sociology, history, the fine arts, and the social sciences.

A more recent study by Cebula and Lopes (1982) retested Koch's (1972) economic incentive theory. However, the authors extended Koch's hypothesis by noting that apart from being totally a function of the monetary value of various majors, students' major field choice was also influenced by the change in earning differentials over time associated with the major field, the job prospects of the major, and students GRE scores. The results from Cebula and Lopes' study (1982) indicated that earning differentials among fields and differences in the rate of change in earnings among fields were the two most important factors affecting students' major field choice.

Studies by Davis (1966) and Thomas (1981) applied sociological rather than economic theory to examine additional non-monetary factors associated with students' major field choice and career aspirations. Davis (1966) argued that by the time of college entry, students' career aspirations and orientations are fairly crystallized and unlikely to change because of previous family, school, and community socialization. Davis' (1966) findings showed that early career expectations and aspirations, and sex (i.e., being male or female), were the two most important determinants of students' career aspirations.

Unlike the previous studies, the investigation by Thomas (1981) included both black and white students who participated in the National Longitudinal Survey (1972) of high school seniors. Thomas' findings confirmed Davis' (1966) hypothesis regarding the importance of students' early career aspirations. The results showed that for black and white college students, the ascriptive attribute of sex, and early career expectations were the two most important determinants of major field choice.

Additional Theories About Major Field Choice

Other theories and hypotheses have been formulated about students' major field choice and vocational aspirations. However, many of these theories have not been empirically tested, especially for black students. Therefore,a survey was designed and data were collected to evaluate the applicability of these theories and hypotheses to black college students.[1] The following variables were included in this study:

Family Socioeconomic Status

Werts (1966) and Davis (1966) observed a strong relationship between family socioeconomic status and students' choice of a mathematics, scientific or professional oriented (i.e., law, medicine) major. Students whose parents had obtained college or subsequent education were more often enrolled in these majors than students who had less educated parents. Also, Cassedy (1975) observed that white females who had highly educated mothers were more often encouraged to choose non-traditional

careers than were white females who had less educated mothers.

Scholastic Aptitude and Academic Grade Performance

It has also been hypothesized that high scholastic aptitude and high grade performance in secondary school are positively related to majoring in scientific, professional and math-based fields. The low enrollment of blacks in mathematics, engineering, and other scientific and technical fields has been attributed by Benbow and Stanley (1980) and others (Morris, 1979; Odegaard, 1977) to the low performance of black students on traditional standardized tests that are required for entry into these fields. Also, Astin and Panos (1969) and Werts (1966) found strong positive correlation between the prestige ranking of college majors and standardized test scores. Data reported in Table 2 from the College Entrance Examination Board (1982) support this observation. These data show that students who have aspirations of majoring in the physical and the biological sciences have higher SAT scores in general than students who expect to major in the social sciences, business and commerce, and the arts and humanities.

High School Tracking and Adequate Course Preparation

The type of high school curriculum that students pursue and the amount and type of high school mathematics and science that they acquire are also important contingencies for college major choice. Data consistently show that women and blacks take fewer mathematics and science courses, have a lower interest in mathematics and science, and are less successful academically in these areas than men and whites

Table 2

Scholastic Aptitude Test Scores for College Bound Seniors by Area of Intended College Major

Major Field Area	SAT Verbal	SAT Math	SAT Total
Physical Sciences	442	524	966
Biological Sciences	434	470	904
Arts & Humanities	436	452	888
Social Sciences	434	451	885
Business & Commerce	409	446	855

Source: Admissions Testing Program of the College Board. National College-Bound Seniors, 1982. Princeton, New Jersey (p. 18).

(Maccoby and Jacklin, 1974; Sells, 1976; Fox, 1976). Sells (1976) found that 57 percent of the males versus only 8 percent of the females had an average of three and one-half years of mathematics. In addition, 92 percent of the females in Sells' study and 50 percent of the blacks who attended college were barred from select undergraduate majors and colleges and universities because of inadequate mathematics preparation and performance. In summarizing the consequences of inadequate mathematics preparation for college access and diversity of major field choice, Sells (1976) stated that:

> Students whose arithmetic skills are too far below grade level in high school are effectively barred from access to the first year of high school algebra, which is the minimal mathematics preparation required by most colleges and universities. Students who have had three and a half to four years of high school mathematics are immediately eligible for the standard freshman calculus sequence at any college or university in the country. Until very recently those students who had not pursued second year algebra and trigonometry in high school had no way of catching up before entering as freshmen, to qualify for the standard calculus sequence, which is required for undergraduate majors in every field except education, criminology, the social sciences, and the humanities. These fields have almost no current job related potential for persons with a bachelor's degree. (Sells, 1976).

Persell (1977) and Rosenbaum (1976) have also noted that the over-presentation of black and female high school students in non-academic tracks severely restricts the educational and occupational choice and mobility of these groups.

Differences in Personal and Social Values, Career Interests and Expectations

Some studies have shown that race and sex differences in career aspirations and choices are partly attributed to differences in personal and social values held by these groups. For example, blacks and women

have shown a greater interest in social service and humanitarian type careers than in investigative (natural science) or entrepreneurial (business) type careers (Holland, 1966; Fox, 1976; Gottfredson, 1978).

Angrist and Almquist (1975) reported that the majority of the college women in their study desired children and marriage, and perceived men as expecting them to pursue these traditional roles. Therefore, many of these women structured their career choices in a manner that was consistent with rather than in conflict with their personal goals, values, and aspirations (Angrist and Almquist, 1975).

Timing and Stability of Career Choices

Brooks and Miyares (1979) reported that the time at which students decided on their vocational and career choices and the consistency of their decisions affected college major choice. Students who selected majors in the hard and technical sciences had decided early (i.e., during junior and senior high school) on their career aspirations and were consistent in their career decision more often than students who majored in education and the social sciences (Brooks and Miyares, 1979).

Inadequate Role Models and Sponsorship

Obtaining adequate encouragement, sponsorship and support from "significant others" (parent, teachers, peers) and relevant role models have been identified as important factors affecting students'

career aspirations and attainment (Sewell, Haller, and Ohlendorf, 1970; Malcom, Hall and Brown, 1976; Blackwell, 1981; Button and Brown, 1979). Malcom et al. reported that women and minorities lacked access to relevant role models and mentors to help cultivate and facilitate their interest in non-traditional careers.

Kagan and Moss (1962) and Brophy and Good (1970) reported that the lack of adequate encouragement by parents, teachers and counselors discouraged women and minorities from pursuing careers in the hard sciences and professional fields. Malcom, et al. (1976) noted that minority women who had earned their doctorate in engineering, biomedicine and other quantitative areas emphasized the need for minority role models at the collegiate level, and also reported that they encountered considerable peer and family pressure to choose traditional careers and fulfill conventional sex role expectations (e.g., marriage and child rearing).

Importance of Critical Mass in College Majors and Job Settings

Findings from some studies suggest that blacks and women choose college majors and careers in which they are more likely to be adequately represented, because they perceive less discrimination and a greater opportunity for achievement and advancement in such settings. Mednick, Tangri and Hoffman (1975) reported that some women are more successful in job settings where their clients, co-workers, subordinates and supervisors are women. Similar implications have been drawn from studies on blacks in predominantly white colleges and job settings

(Allen, 1981; Willie and McCord, 1973; Alvarez and Lutterman, 1979).

Perceived Discrimination and Structural Constraints

Race and sex stereotypes and race and sex discrimination in the existing labor market also facilitate and reinforce traditional major field and career choices among minorities (Scanzoni, 1978; Malcom, Hall and Brown, 1976; Angrist and Almquist, 1975). Some women and racial minorities choose to avoid the racism and sexism often associated with pursuing non-traditional careers (Mednick, et al., 1975). This may be especially true for disadvantaged minorities who lack adequate sponsorship and past records of positive reinforcement.

Race and Sex Socialization

Another explanation for race and sex differences in major field choices and career aspirations concerns the early influence of race and sex socialization. The pervasive influence of sex role socialization is noted by Angrist and Almquist:

> The socialization process from childhood on works to limit women's career aspirations. It shapes a girl's personality, attitudes, beliefs, and preferences so that she wonders whether she can succeed in a career. She anticipates that certain professions and occupations are not receptive to her. She dreads high achievement lest it spoil her life. (Angrist and Almquist, 1975, p. 27).

Type of High School and College Attended

The characteristics of high schools and colleges also affect students' major field choice and career options. Coleman et al. (1981) reported that students in private high schools have greater access to college preparatory curriculums and advanced mathematics and science courses than

do students in public high schools. Also, a higher percentage of black students from predominantly white high schools than from predominantly black high schools select mathematics based majors (Thomas, 1983). Marrett (1981) and Jackson (1982) partly attributed this disparity to the poor quality of the math and science curriculums in many of the inner city predominantly black high schools that black students attend. It has also been reported that the racial composition (Thomas, 1980), the selectivity, and control (Astin, 1980) of the colleges that students attend affect their curriculum options and major field choices.

Primary Hypothesis in Present Study

The major hypothesis in this study that will be tested by regression analysis is that once family background factors (i.e., parental education, income and occupation) and students' academic status, academic ability, and high school performance and preparation are controlled, students' major field choice will be primarily a function of the values, interests, and aspirations that they acquire as a result of their previous childhood, social, academic, and socialization experiences.

This hypothesis attributes primary importance to the effects of early race and sex role socialization on students' educational and occupational attainment (Davis, 1966; Werts, 1966; Maccoby and Jacklin, 1974; Thomas and Hargett, 1981). It also assumes the prime role of significant others' influences (i.e., students' peers, parents, and teachers) and students' interest and academic preparation in mathematics and science in affecting their career aspirations and major field choice.

These assumptions and the major hypothesis will be evaluated by descriptive and multivariate analyses based on a recent subsample of black college junior and seniors.

Chapter II

Data and Methodology

Data

The data for this analysis are based on a subsample of black four-year college juniors and seniors who participated in a survey of college students.[2] It involved 2,090 college students who were juniors and seniors in the Spring of 1982 in eight four-year colleges and universities that were primarily located in the South Atlantic region. Five of the participating institutions were predominantly black and three were predominantly white. Five of the institutions were public institutions and three were private institutions. Table 3 shows other characteristics of the institutions and black students that participated in the survey.

Students who participated in the study were officially majoring in one of thirteen selected major fields: (1) Mathematics, (2) Chemistry, (3) Physics, (4) Biology, (5) Accounting, (6) Economics, (7) Engineering, (8) Social Work, (9) Psychology, (10) Sociology, (11) Nursing, (12) Education, and (13) Business Management. Forty-five percent of the students participating in the study were black (N=927). Eighty-six percent (N=801) of the black students were enrolled in the five participating black institutions, and fourteen percent were (N=126) enrolled in the three predominantly white participating institutions.

Students were asked to complete a seventy-eight item questionnaire that was designed to assess various theories regarding their major field

Table 3

Characteristics of Black Junior and Senior Sample (N=927)
and Participating Institutions

Institutions: State/Race/Control

School	State	School	State	College Race	College Control
Howard University	(DC)	Towson	(MD)	Blk. (5)	Pub. (5)
Clark College	(GA)	University Maryland Baltimore County	(MD)	Wht. (3)	Pvt. (3)
Coppin State	(MD)	Hopkins	(MD)		
Bowie State	(MD)				
Morgan State	(MD)				

Mean SAT - Total (Fall-Spring Fresh. Class 82-83)

School	Mean - SAT
Coppin	600
Morgan	643
Bowie	665
Clark	700
Howard	807
Towson	911
University Maryland Baltimore County	931
Hopkins	1,296

College Classification (Spring '82)

Juniors	(37.9)	351
Seniors	(62.1)	576

Sex

Males	(27.9)	258
Females	(72.1)	668

Major Field

Education/Social Work/Nursing	27.1	(248)
Social and Behavioral Sciences	19.1	(175)
Business/Economics	25.1	(230)
Biological/Natural Tech./Sciences	26.1	(239)
Other Fields	2.5	(23)

choice and their career orientations. The survey inquired about students' early childhood, family, and elementary and secondary school experiences (i.e., study habits, academic performance, mathematics and science preparation, extracurricular activities), their educational and occupational values and expectations, their major field choice, changes in their major field choice, and the reasons why students chose their present college major.

The survey instrument was pretested in Baltimore, Maryland on college juniors and seniors who were enrolled in major fields that were not included in this study. The results from the pretest were used to assess the length, comprehensibility, and readability of the questionnaire and patterns of response bias. Based on this information, the original questionnaire length was reduced and some questions and response categories were revised.

The final survey was distributed to students according to the method agreed upon by the participating institutions. In three of these institutions, the survey was distributed on campus to students and collected by faculty or campus representatives. In the five remaining institutions, the survey was mailed to the students' dormitory or home residence. In addition to the initial survey, two follow-up mailings were distributed. In the first follow-up, an additional questionnaire was sent to students who did not respond to the initial survey. In the second follow-up, a postcard was sent to encourage student response. The overall response rate for black students to the survey after both follow-ups was 36 percent (see Table 4 for response rates for each

Table 4

Participation and Response Rates of Black Students in Major Field Study

Participating Institutions	Method of Student Participation	Targeted No. of Jrs./Srs.	No. of Jr./Sr. Respondents	Response Rates per Institutions	General Response Rates
Bowie State College	On campus-In class	419	93	22.2%	
Clark College	On campus-Outside of class	310	124	40.0%	
Coppin State College	On campus-In class	314	184	58.6%	38.4% (Total Campus Based)
Howard Univ	Mailed Survey	654	243	37.1%	
Johns Hopkins University	Mailed Survey	28	12	42.9%	
Morgan State University	Mailed Survey	619	157	25.3%	
Towson State University	Mailed Survey	111	60	54.0%	
University of Maryland, Baltimore County	Mailed Survey	128	54	42.2%	34.1% (Mailed Survey)
Total		2,583	927		35.9% (Overall Response)

participating institution).

Inadequate Data and Response Bias

Official student rosters from each participating school were used to identify junior and senior majors in the fields of interest to this study. In some cases, information on student addresses was invalid or not adequately updated. Also, in a few cases, students' race and/or major field could not be identified. In addition, approximately ten to fifteen students who responded to the survey failed to provide information on their current major field and race or sex. These respondents were deleted from the study. Another eight to ten students failed to complete 50 percent of the survey or to respond to items of primary interest. These students were also eliminated from the survey.

As noted, two types of data collection methods were employed based on the procedure that was acceptable to the participating schools. In one instance, students were surveyed on campus and completed the questionnaire inside or outside of class. Because of confidentiality, the mailing addresses of these students were not available, thus students who did not respond initially to the survey could not be followed up. Also, for surveys that were distributed in class, only students who were present on the day that the survey was disseminated had an opportunity to participate in the study.

The second survey procedure entailed mailing the questionnaire to students. Arrangements were made with school coordinators for two follow-up mailings. Students who took part in the mailed survey had a

greater opportunity to participate than students who were surveyed on campus.

Missing Data

Missing data and item non-response were not major problems for over 90 percent of the questionnaire items. However, extensive missing data (at least 40 percent) existed on the questionnaire items that asked students to report their SAT scores and their parent's occupation. High non-response rates to these items have been found in previous national surveys (Thomas, 1979; Astin, 1978; Eckland, 1964). Substituting the mean response for missing values or using similar alternative measures are procedures that have been employed to deal with low response rate items (Babbie, 1973). High school and college grade performance will be used as alternative measures of academic achievement in this study. Studies have reported that student self-reported grades are often as reliable as aptitude test score data (Baird, 1969). Also, Morris (1979) and Thomas (1981) reported studies which indicated that high school and college grade performance measures were more reliable than traditional aptitude tests in predicting the academic achievement of black students.

Use and Limitation of Retrospective Data

Retrospective measures were employed in this survey to some extent to obtain information about students' early childhood, family, and schooling experiences. The use and appropriateness of retrospective data is frequently discussed in survey research (Simon, 1969; Kerlinger, 1973, 1976). However, retrospective reporting was the only method of obtaining

data from the present sample of college students about their early childhood experiences. More importantly, this information is not available in previous surveys. Also, the use of retrospective data will be important for testing the various theories that will be evaluated in this research.

Variables

Several variables will be employed in this study to evaluate theories and factors that have been hypothesized to affect students' major field choice. Some of these variables will be presented in descriptive analyses and others will be employed in regression analysis to assess the effects of various independent variables on college major. These variables are:

Sex - Males were coded 1 and females were coded 0.

Mother and Father Education - Respondents were asked to indicate the highest level of education obtained by their mother and father (or male or female guardian). The six category item ranged from "less than high school graduation" to "graduate or professional education."

Parental Income - Respondents were asked to report their parents' or guardians' total family income before taxes in 1981. The seven category item ranged from less than $5,000 per year to $25,000 or over.

Childhood Interests and High School Extracurricular Activities

On a number of items, students were asked about the extent to which they liked reading, cooking, working on science projects and other hobbies upon growing up. The response categories ranged from "very

much" to "not at all". In addition, students were asked to indicate (via "yes", "no" responses) the high school extracurricular activities that they had participated in.

Childhood Exposure to Role Models - This item asked respondents to indicate if they knew upon growing up any black or white male and female scientists, mathematicians, and engineers, doctors, or lawyers. Students who responded yes to each item were coded 1 and those who responded no were coded 0. Responses to these four items were summed and weighted.

Childhood Role Model Aspirant

Students were asked to indicate from a list of "occupational types", the occupational role model (i.e., teacher, scientist, doctor, etc.) that they most wanted to be like upon growing up.

High School Mathematics and Science Affinity - Two items asked respondents to indicate the extent to which they liked high school mathematics and science. Response categories ranged from "very much" (coded 5) to "not at all" (coded 1).

High School Mathematics and Science Preparation - Respondents were asked to indicate from a list of subjects the high school science and mathematics courses that they had taken. A high school science index was constructed based on three items that asked whether respondents had taken high school biology, chemistry or physics. Similarly, a high school mathematics index was constructed, consisting of three items that asked respondents if they had taken advanced high school algebra, trigonometry, and calculus. Respondents who took these courses were

coded 1 for each course that they had taken and 0 for each course they had not taken. The responses to the items in each of the two indices (i.e., high school mathematics and science preparation) were summed and weighted.

High School Mathematics and Science Grade Performance - Respondents were asked to indicate on separate items the letter grade that best described their high school mathematics and science grade performance. The response categories ranged from mostly A (coded 5) to mostly E or F (coded 1).

General High School Grade Performance - On this item respondents indicated the letter grade that best described their high school grade performance in general. The response categories ranged from mostly A (coded 5) to mostly E or F (coded 1).

High School Curriculum - Respondents were asked to indicate the type of high school curriculum that they were enrolled in. Participation in an academic or college preparatory program was coded 1, and participation in vocational, technical or other non-academic programs was coded 0.

Significant Others Influence on College Major - Respondents were asked to indicate the three most important persons (in order of influence) who influenced their major field choice. Parents, teachers, and peers were the three persons most frequently named by respondents. These three items were dummy coded (i.e., assigned 0 and 1 coding) and treated as separate items in subsequent regression analysis.

Educational Expectations - This is a four-category item that asked respondents to indicate the highest level of education they expected to obtain. Response categories ranged from "do not expect to graduate from college" to "expect to obtain an advanced graduate or professional degree."

Occupational Expectations - On this item, respondents were asked to indicate from a list of occupations the job that they expected to obtain upon completing their education. This information was coded into Duncan Socioeconomic Index (SEI) scores.

Timing of Major Field Choice - Respondents were asked to indicate whether they had decided on their present college major before college (coded 1) or after college (coded 0).

Major Field Change - This item asked whether respondents had ever changed majors (never changed coded 0; changed coded 1) since their freshman year, and the number of times (once, twice, more than twice) they had changed.

College Race and College Control - These items were based on the racial composition of the college that students attended (predominantly black institutions coded 0; and predominantly white institutions coded 1) and the control of their institutions (public coded 0; private coded 1).

College Grade Performance - Respondents were asked to indicate the letter grade that best described their college grade performance. Response categories ranged from mostly A (coded 5) to mostly E or F (coded 1).

College Major - The primary dependent variable in this study, major field choice, is based on an item that asked respondents to indicate their

present major from a list of major fields. Because students were selected as participants in the study based on their enrollment in specific college majors, most students were majoring in one of thirteen fields: (1) Mathematics, (2) Chemistry, (3) Physics, (4) Biology, (5) Accounting, (6) Economics, (7) Engineering, (8) Social Work, (9) Psychology, (10) Sociology, (11) Nursing, (12) Education, and (13) Business Management. When presenting cross tabulations, college major will be treated as a trichotomous measure of majoring in: (1) Education, Social Work, Nursing, the Social and Behavioral Sciences and other fields; (2) Business and Economics, and (3) the Biological, Natural and Technical Sciences. However, for purposes of regression analysis, college major will be defined as a dichotomous measure of majoring in the Biological, Natural and Technical Sciences (coded 1) versus majoring in Education, Social Work, Nursing, and the Social Sciences and other fields (coded 0).

Chapter III

Descriptive Analysis and Results

The first part of the analysis presents descriptive data to evaluate various theories about students' major field choice. Comparisons from frequency distributions and cross tabulations will be made for black males and black females in predominantly black and predominantly white institutions, and for blacks in various major fields within these institutions. Table 5 (see Appendix A) presents distributions by sex and by college race on variables that have been previously noted in this report as relevant for understanding black students' major field choice.[3]

Family Background

Beginning with family background, Table 5 shows that black males who were enrolled in predominantly black public four-year colleges and in predominantly white four-year colleges were from higher family backgrounds than black females. In addition, blacks in predominantly white colleges were from higher family backgrounds than blacks in predominantly black public and private colleges.

Childhood Hobbies and High School Academics

The data in Table 5 suggest that traditional sex distinctions characterized the early childhood hobbies of black students in all three types of colleges regarding their early childhood hobbies. For example, in predominantly white and black colleges, black females were almost twice as likely as black males to enjoy reading and cooking

during childhood, while black males were two to three times more likely than black females to express a strong interest in building and repairing and in working on science projects. In contrast, black females in all three types of institutions were more likely to participate in high school vocational clubs and less likely to participate in high school science clubs than were black males. Third, black males in all institutions had a stronger affinity for high school science than black females.

Childhood Role Model Aspirants

Black students participating in the study were asked to select from a list of role models the person that they most wanted to be like upon growing up. Black males in all three types of colleges were one and a half to three times more likely to aspire to be scientists than were black females. In contrast, black females in all three institutions were twice as likely as black males to report childhood aspirations of being teachers.

High School Performance and Academic Preparation

The distributions in Table 5 suggest that a higher percentage of black students in private black colleges and in predominantly white colleges indicated that they were enrolled in academic curriculums in high school than did black students in predominantly black public colleges. Also, a higher percentage of black students in predominantly black private colleges and in predominantly white colleges reported that they were 'A' students in high school than did black students in predominantly black public colleges. With reference to sex differences, in all three institutions black males were much more likely than black

females to have taken advanced high school science courses (chemistry, physics). This sex difference also existed for all institutions regarding enrollment in advanced high school mathematics where males were far more likely than females to report enrollment in advanced high school mathematics.

Educational Expectations, Work Values and Personality Attributes

A higher percentage of black students in black private colleges and in predominantly white colleges indicated expectations of obtaining a graduate or professional degree than black students in predominantly black public colleges. In addition, black males in public black colleges and in predominantly white colleges were 1.5 times more likely than black females in these institutions to express that they would obtain a graduate or professional degree. However, in black private colleges, an equal percentage (fifty-six percent) of black males and females indicated that they expected to obtain a graduate or professional degree.

Regarding work values, a higher percentage of black students in predominantly black public and private colleges viewed making money as very important in choosing a job than did black students in predominantly white colleges. In contrast, blacks in predominantly white colleges and black females in predominantly black public colleges viewed being able to help people and society as more important than making money in choosing a job.

Importance of Critical Mass and Perceived Discrimination

Student participants in the survey were asked about the importance

they attributed to being in a work environment where less than 25 percent of their co-workers were of their own race. In addition, they were asked to indicate the extent to which they perceived their race as a barrier to their occupational aspirations. Over 70 percent of the black males and females in all institutions indicated that they were indifferent (i.e., it did not matter) to being in a work environment where they were a minority. However, between 40 and 50 percent of all black students perceived their race as a barrier to their occupational aspirations . Also, black males in all institutions were more likely to perceive their race as a barrier (about 56 percent) to their occupational aspirations than were black females (between 41 and 48 percent).

Major Field Choice and Timing and Reasons for Choice

Black students were also asked during the 1983 survey to indicate their current major field choice and the reason(s) that they had selected their present college major. In all three types of institutions,the traditional sex stereotypical patterns that have been reported from national data on black students (Thomas, 1980; Trent, 1983) existed for the present sample of blacks. Specifically, black females in all institutions were three times more likely to major in education, nursing, social work and the social sciences than were black males. In contrast, black males were almost twice as likely to major in the biological, natural, and technical sciences than black females.

In terms of reasons for major field choice, selecting a major of interest and one that provided good job opportunity were the two most important reasons given by black females in predominantly black private colleges and by black males in all three types of colleges (i.e., black private and public colleges and predominantly white colleges). However, for black females in predominantly white colleges and in predominantly black public colleges, selecting a major field that would enable them to help people and one that was of interest were the two most important reasons reported for their major field choice. With reference to the timing of major field choice, a higher percentage of black females in all institutions than black males decided on their present college major prior to college rather than during or after college entry.

Comparisons Between Students in Different College Majors

The second set of Tables, Tables 6-8 (see Appendix A) provides a comparison among black students in predominantly black and white institutions in different college majors on family background characteristics and other variables relevant to major field choice. Davis (1965) and Werts (1966) observed a distinct class hierarchy among white students in various college majors. These researchers also noted that the educational and occupational aspirations and interests of students in various majors differed. The extent to which these observations apply to black students can be examined based on the data in Tables 6-8.

Family Background

Beginning with family background, Tables 6-8 show that in general, black majors in the biological, natural and technical sciences in predominantly black private colleges and in predominantly white colleges are from higher family backgrounds than their counterparts in business and economics, education, social work, nursing and the social sciences. However, among black students in black public colleges, majors in business and economics are from slightly higher family backgrounds than students in the natural and social sciences and in other majors shown in Tables 6-8.

Early Childhood and High School Interests

In all three types of colleges, black students in the biological, natural, and technical sciences expressed greater interest in working on science projects during childhood than black majors in business and economics, education, social work, nursing and the social sciences. In addition, black majors in the biological, natural, and technical sciences were more likely to participate in high school science clubs and had a stronger affinity for high school mathematics than black students in other majors.

Childhood Role Model Aspirants

Regarding role model aspirants in all three types of institutions, a higher percentage of black majors in the biological, natural, and technical sciences had childhood aspirations of being physicians and scientists than did black majors in business and economics, education, nursing, social work, and the social sciences. In contrast, a much higher

percentage of black majors in education, social work, nursing, and the social sciences had childhood aspirations of being teachers than did black majors in business and economics and in the biological, natural, and technical sciences.

High School Performance and Academic Preparation

In all three types of colleges, black majors in the biological, natural and technical sciences were 1.5 to 2 times more likely to have taken high school chemistry and physics than were black majors in business and economics, education, social work, nursing, and the social sciences. Also, in all institutions, a substantially higher percentage of black majors in the biological, natural and technical sciences and in business and economics reported that they took advanced high school mathematics (i.e., trigonometry and calculus) than did black majors in education, social work, nursing, and the social sciences.

Educational Expectations

Tables 6-8 show that the educational expectations of black students varied somewhat among students across and within institutions. For example, in predominantly black public colleges and in predominantly white colleges, black majors in the biological, natural, and technical sciences were almost twice as likely to indicate expectations of obtaining a graduate or professional degree than black majors in business and economics, education, nursing, social work, and the social sciences. However, in black private colleges a similar percentage (60 percent) of black majors in the biological, natural and technical sciences and in education, social work, nursing and the social sciences expected to

obtain a graduate or professional degree. These students also had higher educational expectations than their counterparts in business and economics.

Importance of Critical Mass and Perceived Discrimination

Over fifty percent of black students in all majors in all three types of institutions indicated that it did not matter if they worked in job settings where less than 25 percent of their co-workers were of their own race. Thus, the critical mass theory and the concept of "consciousness of kind" does not appear highly applicable to the present sample of black students. One reason may be that unlike blacks who prior to desegregation were confined to and thus only familiar with interacting in predominantly black environments, some of the present sample of blacks who attended desegregated schools and lived in desegregated communities may be more receptive to predominantly white work settings than cohorts of blacks who have not been previously exposed to desegregated environments. Research by Crain and Mahard (1978) and Braddock and McPartland (1979) supports the hypothesis that previous desegregation exposure and experiences are positively related to attitudes about desegregation and subsequent desegregation experiences.

Although the data in Tables 6-8 do not support the "critical mass hypothesis","the perceived discrimination" hypothesis does appear relevant for blacks in black public and private colleges. The data in Tables 6-8 show that between 40 and 50 percent of blacks in all majors in these institutions perceived their race as a barrier to their

occupational aspirations. However, in predominantly white institutions, black majors in the biological, natural, and technical sciences were an exception. Eighty-five percent of the students in these majors viewed their race as an asset rather than a barrier to their occupational aspirations.

Reasons for College Major Choice and Timing of Major Decision

For black majors in education, social work, nursing and the social sciences in black public colleges, selecting a major that would enable them to help people was the most important reason for their major field choice. However, for blacks in the natural, biological and technical sciences in all institutions, choosing a major of interest was the most important reason for their major field choice. This was also true for education, social work, nursing, social science, business and economic majors in predominantly white colleges.

Regarding the time at which students decided on their major field, in all institutions, a higher percentage of blacks in the biological, natural and social sciences and in education, nursing, social work and the social sciences decided on their majors prior to college than black majors in business and economics.

Summary of Descriptive Results

In examining variables associated with the major field choice of black students in predominantly black and white four year colleges, a number of distinct patterns were found for males and females, and for students in various majors. Also, many of the findings from the descriptive data suggested that previous theories about the profound

effects of sex role socialization and early aspirations on students' vocational choices are applicable to the present sample of black college students. For example, traditional and distinct sex patterns were found regarding black students' childhood hobbies and career aspirations, their personality and work value orientations, and their participation in high school science clubs and in advanced high school mathematics. Specifically, black females, relative to black males, had a greater interest during childhood in reading and cooking but less of an interest in building and repairing and working on science projects. Also, black females more often than black males held childhood aspirations of being teachers than scientists, and had a greater interest in careers that would permit them to help people rather than make money. In addition, black females were less likely than black males to participate in high school science clubs and take advanced high school science courses. These sex distinctions were more pronounced among black students in predominantly black public colleges and in predominantly white colleges than among black students in predominantly black private colleges.

Social class and ability differences were also apparent among black students in different majors. However, the nature of these differences varied among majors depending upon the racial composition of the college they attended. For example, black biological, natural and technical science majors in predominantly white colleges and in predominantly black private colleges were from higher family backgrounds and had higher

academic ability (i.e., were more likely to be "A" students) than black business, economics, education, nursing, social work, and social science majors. However, in public black colleges, black business and economic majors were from slightly higher family backgrounds than were black students in other majors.

To summarize, the results from the descriptive analyses suggest that the selection of a college major for black students involves a fairly deliberate process whereby sex role orientations and early educational and occupational aspirations and expectations assume a critical role. This is consistent with the initial hypothesis in this study which suggested that black students' major field choice would be primarily influenced by their interests, values, and aspirations once objective factors like their family background and academic ability and preparation are taken into consideration.

Chapter IV

Multivariate Analysis of the Process of College Major and Results

In this part of the analysis, SPSS (Nie, et al., 1975) subprogram multiple regression will be used to examine the effects of the variables outlined in Figure 1 on black students' college major choice. The model in Figure 1 (see Appendix B) was initially evaluated for the total sample. These results (See Appendix B) indicated that some of the variables in Figure 1 did not have a significant effect on college major. These variables included parental income, mother and father education, adult role model exposure, high school curriculum, high school mathematics grades, the influence of parents, peers, and teachers on major field choice, the time that students decided on their major, major field change, and college control. Most of these variables were deleted from the initial model.[5] The model was then reanalyzed for the total sample of black students. These results are presented in Table 9. (See Appendix C for item correlations, means and standard deviations.)

Columns 1-5 of Table 9 show the influence of various independent variables when other independent variables are included or not included in the regression equations. Column 5 represents the "full" or complete equation with all variables included. Collectively, these variables explain 31 percent of the variance in black students' college major choice. The two variables having the strongest effect on black students' college major choice are occupational expectations (.341) and

Table 9

Regression Model of Black Students' College Major Choice-Total Sample (N=915)[a]

Independent Variables	(1) Collg. Major	(2) Collg. Major	(3) Collg. Major	(4) Collg. Major	(5) Collg. Major
Sex	.290[b]	.268	.224	.222	.213
Fath Ed.	.126	.095	.063	.066	.069
Moth. Ed.	.003*	-.018*	-.031*	-.033*	-.036*
Adv. Sci.		.050	.045*	.C54	.056
Adv. Math		.119	.112	.126	.125
H.S. Math Grades		.157	.127	.119	.135
H.S. Sci. Grades		.106	.099	.111	.124
Ed. Expt			-.151	-.152	-.132
Occpt. Exp.			.321	.328	.341
Collg. Control				-.047*	-.058*
Collg. Race				-.112	-.122
Collg. Grades					.097
R^2	.106	.203	.289	.300	.308

[a]Analysis is based on SPSS subprogram regression option Pairwise Deletion. The number of cases (N=915) is based on the N for the major dependent variable--major field choice.

[b]Coefficients are standardized regression coefficients.

*Coefficients are less than twice their standard error.

sex (.213). Columns 1-5 show that both of these variables have a significant indirect (Columns 1-4) and direct (Column 5) effect on black students' college major. The positive regression coefficients for these variables suggest that students with high rather than low occupational expectations, and black males moreso than black females, choose majors in the biological, natural, and technical sciences.

Other variables that are significantly related to major field choice for the total sample of black students are high school mathematics grades (.135), having taken advanced high school mathematics courses (.125), high school science grades (.124), college racial composition (-.122), and college grades (.097). The negative effects of educational expectations (-.132) on college major choice was not anticipated because past studies have reported a positive relationship between educational expectations and vocational and occupational aspirations (Sewell, Haller and Ohlendorf, 1970; Porter, 1974; Portes and Wilson, 1976). However, the present negative effects of educational expectations on major field choice suggests that black students who major in business and economics, education, social work, nursing and the social sciences have higher educational expectations than black majors in the biological, natural, and technical sciences (which include mathematics, engineering and the computer sciences). Thus it may be that many academically and/or financially disadvantaged black students are discouraged by the academic and financial requirements for graduate and professional study in the natural and technical sciences and therefore lower their educational

expectations. Also, black B.A. degree recipients in engineering, mathematics, and the computer sciences may anticipate getting a "good job" with a B.A. degree, and thus do not perceive the need for additional higher education. LeBold et.al. (1983) recently studied the status of minority engineering B.A. graduates, and found that many of these students receive attractive job offers and are therefore not convinced of the value of obtaining graduate education.

Table 9 also shows that attending a predominantly white college (coded 1) has a significant negative effect on black students' choice of natural or technical science majors. This observation was also reported in previous studies by Thomas (1979) and Trent (1983). It may be attributed to the existence of remedial and pre-college programs, and other support programs at black colleges, and to role models and mentors provided by faculty at predominantly black colleges.

Tables 10 and 11 present the results from separately analyzing the revised regression model (i.e. with fewer variables) for black males and females, and for blacks in predominantly black public and private colleges and in predominantly white colleges. The corresponding inter-item correlations and means and standard deviations for these subgroups are given in Appendix C. Sex differences and differences among black students in various colleges and universities have been reported in past status attainment research (Thomas, Alexander and Eckland, 1979; Thomas, 1980; 1983). Also, the descriptive data presented previously revealed distinct sex patterns and patterns among black students by college

Table 10

Regression Model of Black Males' (N=255) and Black Females' (N=659) College Major Choice[a]

	Black Males	Black Females
Fath. Ed.	.006[b]	.021
	.030*	.083
Moth. Ed.	-.025	-.002
	-.121*	-.009*
Adv. Sci.	.118	.062
	.111*	.048*
Adv. Math.	.133	.202
	.094*	.129
H.S. Math Grades	.021	.105
	.042*	.178
H.S. Sci. Grades	.068	.094
	.115*	.143
Occpt. Expt.	.007	.014
	.196	.390
Ed. Expt.	-.097	-.091
	-.175	-.137
Collg. Control	-.074	-.044
	-.085*	-.044*
Collg. Race	-.137	-.181
	-.112*	-.124
Collg. Grades	.015	-.056
	.037*	-.105
R^2	.112	.309

[a]Analysis is based on SPSS subprogram regression option Pairwise Deletion. The number of cases for black males ranged from 217 to 258 and for black females from 526 to 668.

[b]The top coefficients are the unstandardized values, and the bottom coefficients are the standardized (beta) coefficients.

*Coefficients are less than 1.5 times their standard error.

Table 11

Regression Model of Black Students' College Major Choice in Predominantly White Colleges (N=125), Predominantly Black Private (N=362), and Black Public Colleges (N=428)[a]

	Blacks In White Colleges	Blacks In Pvt. Black Colleges	Blacks in Pub. Black Colleges
Sex	.323[b]	.144	.309
	.299	.133	.274
Fath. Ed.	-.016	.020	.036
	-.065*	.083*	.126
Moth. Ed.	.028	-.032	.005
	.107*	-.137	.017*
Adv. Sci.	.003	.110	.041
	.002*	.084	.031*
Adv. Math	.057	.167	.236
	.037*	.108	.128
H.S. Math Grade	.218	.056	.090
	.377	.099	.146
H.S. Sci. Grade	.010	.100	.082
	.014*	.153	.116
Ed. Expt.	-.112	-.133	-.053
	-.175	-.184	-.080*
Occpt. Expt.	.010	.016	.009
	.252	.443	.222
Collg. Control	-.024		
	-.014*		
Collg. Grades	-.042	-.007	-.080
	-.072*	-.014*	-.155
R^2	.348	.352	.283

[a]Analysis is based on SPSS subprogram regression option Pairwise Deletion. The number of cases for blacks in white colleges ranged from 98 to 126; for blacks in private black colleges 296-367; and for blacks in black public colleges 332-434.

[b]The top coefficients are the unstandardized values, and the bottom coefficients are the standardized (beta) coefficients.

*Coefficients are less than 1.5 times their standard error.

major and by the type of college attended. Thus, it was deemed appropriate to analyze the model in Figure 1 separately by sex, and for students in predominantly black and white colleges. Table 10 presents parallel regression equations for black males and black females. The top coefficients are the unstandardized regression values which are appropriate for between group comparisons (Blalock, 1967). The bottom coefficients are the standardized regression coefficients. These values are useful for comparing the relative effects of the independent variables on the dependent variables within groups.

The standardized values in Table 10 show that among the independent variables, occupational expectation has the strongest influence on major field choice for black males (.196) and black females (.390). However, the unstandardized values indicate that its effect is twice as strong for black females (.014) as for black males (.007). The relatively stronger impact of occupational expectations on college major than other variables for black males and black females supports the hypothesis by Davis (1966) and others (Angrist and Almquist, 1975) concerning the primary role of students' career aspirations in determining their educational and occupational attainment.

Table 10 also shows that high school mathematics (.178) and science (.143) grade performance, and having taken advanced high school mathematics (.202), have significant and positive effects on the major field choice of black females, but not black males. For black females, taking advanced high school mathematics is the second most important determinant of major field choice. Thus Sells' (1976) hypothesis regarding

the critical "filtering role" that high school mathematics preparation plays in sorting students into different career tracks appears very applicable to the present sample of black females. Lastly, Table 10 shows that the negative effects of attending a predominantly white college on college major is significant for black females (-.105) but not for black males (.037).

Table 11 presents the final results from regression analyses. It shows parallel regression equations for black students enrolled in predominantly white colleges, and in predominantly black public and private colleges.[6] First, the R^2 values show that the independent variables account for a slightly higher percent of variance in major field choice for black students in predominantly white colleges (R^2 = .348) and black private colleges (R^2 = .352) than for black students in black public colleges (R^2 = .283).

Second, the positive and significant effect of sex across all three equations suggests that black females in predominantly black and in predominantly white institutions are less represented than black males in the biological, natural and technical sciences. However, the unstandardized values suggest that the female disadvantage relative to black male enrollment in these majors is twice as great among blacks in predominantly white colleges (.323) and in predominantly black public colleges (.309) than among blacks in black private colleges (.144). In fact, sex rather than occupational expectations is the strongest determinant of college major choice for black students

in predominantly white colleges and in black public colleges. However, the reverse is true for black students in black private colleges.

Another interesting contrast between blacks in predominantly black and white colleges concerns the effects of high school mathematics and science performance and advanced high school mathematics preparation on college major. Although significant for all three groups, the positive effects of high school mathematics grade performance on college major (i.e., majoring in the biological, natural, and technical sciences) is three times greater for blacks in predominantly white colleges (.218) than for blacks in predominantly black private (.056) and public (.090) colleges. Also, high school science performance has a positive and significant effect on college major for black public (.082) and private (.100) college students. However, it does not significantly affect the college major choice of black students in predominantly white colleges. Lastly, enrollment in advanced high school mathematics significantly affects majoring in the biological, natural and technical sciences for black students in black public and private colleges. However, it does not significantly affect the enrollment of black students in predominantly white colleges in these fields.

Summary of Regression Results

Multivariate analysis was employed in the latter half of this study to determine the relative effects of various independent variables on black students' college major. This technique was also used to evaluate the relevancy of various theories about students' career aspirations to understanding black students' major field choice.

The results from regression analysis revealed that students' sex and occupational expectations were the two most important determinants of majoring in the biological, natural and technical sciences. Specifically, being male and having high occupational expectations were significant assets for majoring in these fields. This was true for the total sample of blacks, for separate sex groups (i.e. black males and black females), and for black students in predominantly black and predominantly white colleges.

The results from regression analysis also showed that the male advantage over females in enrollment in the natural and technical sciences was greater among black students in predominantly white colleges and in predominantly black public colleges than among black students in black private colleges. In addition, the positive effect of occupational expectations on majoring in the natural and technical sciences was stronger for females than for males. These observations (especially for females) support Davis' (1966) hypothesis concerning the prime role of sex role socialization and students' career aspirations in determining their vocational choices and orientations. It also supports the major hypothesis in this study that once students' family background and academic performance and preparation are controlled, students ascriptive attributes (i.e., sex, race) and their personal values, interests and aspirations become the major determinants of their college major choice.

The past finding noted by Sells (1976) concerning the critical role of high school mathematics and science preparation for major field access

was supported in this study by the regression results for black females. The findings revealed that high school mathematics grade performance and enrollment in advanced high school mathematics were positively and significantly related to majoring in the biological, natural and technical sciences for black females (but not for black males).

Finally, the results from regression analysis indicated that some of the previous theories and/or variables that were verified or hypothesized as important determinants of the vocational choices and career aspirations of whites were not significant for the present sample of blacks. These variables included the influence of parents, teachers and peers on students' college major choice, their exposure to professional role models, their parental income, high school curriculum, and the timing and stability of their major field choice.

Chapter V

Summary and Conclusions

Overall, the findings from the descriptive data and from multivariate analysis suggested that choosing a college major is a process for most black students that begins long before the point of college entry. In addition, the findings revealed that black students' choice of a college major is primarily influenced by subjective factors once family background and more objective factors are taken into consideration. Specifically, the ascriptive status of sex, students' occupational expectations, and their career interests were the most important factors affecting their major field choice.

Distinct sex patterns among blacks were also indicated by the descriptive data. These patterns were useful in understanding the disadvantage that black females experienced relative to males in majoring in the biological, natural and technical sciences. It was found that during childhood, black females were less interested in building and repairing, in becoming scientists, participating in science clubs, and taking advanced high school mathematics than were black males. Also in contrast to black males, black females were more interested in pursuing majors that would enable them to help people and society than majors that would allow them to make money. Given these findings, it is not surprising that black females are more concentrated in education, social work, nursing and the social sciences than in the

biological, natural and technical sciences.

Detailed and systematic studies on sex role socialization are needed to better understand the influence of sex on students' career expectations and aspirations. In addition, more direct measures of race and sex socialization than were employed in this study might be useful in further explaining the major field choice of black students. Also, the low percentage of the variance explained in college major choice for black males (R^2 = .11) relative to black females (R^2 = .30) suggests that future inquiries involving additional variables and larger samples of black males may be useful in better understanding the dynamics of the college major process for blacks, and especially black males.

Research and Policy Implications

Several of the findings from this study have important policy implications. For example, the findings that occupational expectations and having an interest in a specific major were important determinants of black students' college major choice suggests that early family and school intervention may be necessary to cultivate and/or stimulate greater interest in mathematic and science based majors among black students, especially among black female. These efforts should include early and innovative race and sex socialization and more applied and progressive methods of teaching elementary

and secondary school mathematics and science. Black students (black females in particular) must also become more aware of applied and non-traditional careers that are currently available in the natural and technical sciences given their interest in college majors and careers that are oriented towards helping people and society.

The finding that advanced high school mathematics preparation was a significant determinant of college major for black females and for black students in white colleges also has important policy implications. First, this observation suggests that black students who attend predominantly white colleges with expectations of pursuing natural and technical science majors must be adequately prepared in high school mathematics upon entering these colleges. In addition, administrators and faculty at predominantly white institutions may need to create additional economic and noneconomic incentives to allow a greater number of academically able black students to pursue majors in these fields.

This study also suggests that an understanding of the college major process for black students might be enhanced by longitudinal data on the actual job attainment of B.A. and graduate degree recipients in various majors. Most of the existing studies on students' major field choice and occupational outcomes have been restricted to undergraduate samples. Thus, national data at the graduate and professional level might be valuable.

Third, different measures on the occupational and economic payoffs derived from investing in various college majors and careers are

needed. Earnings and job prestige are two measures that are often used to evaluate the returns from educational and career investments. However, other important measures to consider are the extent of personal well-being and satisfaction derived from various career investments, the types of personal and social trade-offs (i.e., family arrangements, life-style, etc.), and the mobility patterns associated with various majors.

Finally, the results from this study suggest that an understanding of students' college major choice might be extended by detailed qualitative rather than quantitative studies of college students' major field choice and career aspirations. Extensive biographical and interview data, especially on the early childhood, family, and schooling experiences of students and on their values and perceptions about various major fields and careers might be useful in this respect. Qualitative analyses involving these variables will be considered by the author in future research on students' major field choice and career aspirations.

Footnotes

1. The author may be consulted for additional information concerning the survey instrument employed in this study.

2. Dr. Charles Baldwin and Dr. Debra Kalmus contributed to the survey construction and data collection activities in this study. Their input was invaluable and greatly appreciated.

3. The extensive length of these tables warranted their placement in the Appendix rather than in the text.

4. Technically, the model in Figure 1 should not be viewed in path analytical terms since the causal relationships among the independent variables are not specified and will not be analyzed. These relationships are not analyzed because the primary interest of this analysis is in the impact of the independent variables on college major.

5. Although not significant in the preliminary model, variables on parental education, high school mathematics performance, educational expectations, and college control were not deleted from the subsequent model that was re-evaluated for the total sample of black students. The reason is that previous analyses (Thomas, 1981, 1983) and separate analyses (not presented) of the preliminary model for black males and females showed that these variables exerted significant effects for these subgroups. Therefore these variables were retained when reanalyzing the model in Figure 1.

6. The sample of black respondents in predominantly white institutions was not large enough to perform separate analyses for students who attended predominantly white public and private colleges.

7. The nonsignificant effect of high school mathematics performance and advanced high school mathematics preparation indicated by the regression results for black males may be attributed to the limited number of black males and/or the unique attributes of the present sample of black males. Thus a follow-up survey involving a larger number of black males may be useful in investigating these possibilities.

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APPENDIX A

Table 5

Family Background, Academic and Other Characteristics of Black Students at Predominantly White Colleges and Predominantly Black Private and Public Colleges (Percentages Reported)[a]

Characteristics	White Colleges		Black Pvt. Colleges		Black Pub. Colleges	
PARENTAL BACKGROUND	Black Males (N=37)	Black Females (N=89)	Black Males (N=106)	Black Females (N=261)	Black Males (N=115)	Black Females (N=318)
Mother's Education						
High school not completed	20	20	14	14	27	25
High school completed	34	35	26	31	33	36
Some college	20	26	22	21	18	22
College completed	6	7	12	11	9	7
Graduate/professional	20	11	26	23	13	9
Not part of family	0	0	0	0	0	1
Father's Education						
High school not completed	26	38	28	23	34	36
High school completed	23	24	16	27	25	32
Some college	6	19	23	16	20	16
College completed	14	6	14	12	8	7
Graduate/professional	28	7	16	20	11	7
Not part of family	3	6	3	2	1	2
Parental Income						
Less than $15,000	14	22	32	29	32	34
$15,000 - $24,999	22	22	26	21	26	27
$25,000+	42	36	31	33	31	24
Don't know	22	20	11	17	11	15
CHILDHOOD INTERESTS:						
Reading						
Very much	30	55	28	51	31	41
Somewhat/A little	57	33	57	41	51	49
Not much/Not at all	13	12	15	8	18	10

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Table 5 (continued)

Characteristics	White Colleges		Black Pvt. Colleges		Black Pub. Colleges	
	Black Males (N=37)	Black Females (N=89)	Black Males (N=106)	Black Females (N=261)	Black Males (N=115)	Black Females (N=318)
Bldg. and Repairing						
Very much	22	6	34	7	33	14
Somewhat/A little	57	50	54	55	44	53
Not much/Not at all	21	44	12	38	23	33
Science Projects						
Very much	32	10	28	15	24	17
Somewhat/A little	35	50	57	57	57	49
Not much/Not at all	33	40	15	28	19	34
Cooking						
Very much	30	35	11	34	12	45
Somewhat/A little	35	50	39	47	47	42
Not much/Not at all	35	15	50	19	41	13
EXTRA-CURRICULAR ACTIVITIES* IN HIGH SCHOOL						
Science Club	20	7	23	20	19	11
Honor Society	43	38	37	50	20	26
Math Club	3	3	9	13	7	8
Vocational Club	11	19	5	26	8	26
Liked Math in H.S.						
Very much	43	34	43	43	41	41
Somewhat/A little	33	42	41	43	40	36
Not much/Not at all	24	24	16	14	19	23

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Table 5 (continued)

Characteristics	White Colleges		Black Pvt. Colleges		Black Pub. Colleges	
	Black Males (N=37)	Black Females (N=89)	Black Males (N=106)	Black Females (N=261)	Black Males (N=115)	Black Females (N=318)
Liked Science in H.S.						
Very much	49	2[illegible]	51	35	38	28
Somewhat/A little	32	51	40	50	47	49
Not much/Not at all	19	25	9	15	15	23
CHILDHOOD MODEL ASPIRANT*						
Homemaker	0	17	1	15	02	21
Business Person	27	37	32	43	47	46
Athlete	43	10	43	16	45	10
Doctor	46	39	43	36	30	26
Teacher	22	59	16	37	15	49
Scientist	32	6	36	20	38	11
High School Curriculum						
Vocational/Other	8	11	12	6	24	21
Academic	92	89	88	94	76	79
High School Science Taken*						
General Science	84	68	69	72	87	86
Biology	92	95	88	91	84	85
Chemistry	76	67	82	73	54	44
Physics	46	24	56	35	35	18
High School Math Taken*						
General Math	76	62	52	60	78	85
Algebra	92	94	94	92	91	87
Advanced Algebra	70	48	58	62	40	31
Trigonometry	54	35	71	55	45	23
Calculus	5	11	17	15	8	2

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Table 5 (continued)

Characteristics	White Colleges		Black Pvt. Colleges		Black Pub. Colleges	
	Black Males (N=37)	Black Females (N=89)	Black Males (N=106)	Black Females (N=261)	Black Males (N=115)	Black Females (N=310)
General H. S. Grades						
A	36	27	30	34	3	14
B	53	64	55	57	60	64
C	11	9	15	8	36	22
D and below	0	0	0	1	1	0
H. S. Math Grades						
A	39	23	32	33	39	23
B	28	38	35	40	28	38
C	28	37	30	24	28	37
D and below	5	2	3	3	6	2
H. S. Science Grades						
A	35	24	31	32	9	13
B	43	49	49	48	52	50
C	22	27	19	19	37	34
D and below	0	0	1	1	2	3
Educational Expectations						
Don't expect to graduate	0	1	2	1	2	1
Grad. College	13	21	9	8	15	24
Master's	22	45	29	34	36	45
Ph.D. or other Prof. Degree	57	30	56	56	39	27
Don't know	8	3	4	1	8	3
FACTORS IMPORTANT IN JOB CHOICE						
Money						
Very important	14	15	22	21	29	26
Important/Somewhat	78	81	74	77	70	71
Not imporant	8	4	4	2	1	3

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Table 5 (continued)

Characteristics	White Colleges		Black Pvt. Colleges		Black Pub. Colleges	
	Black Males (N=37)	Black Females (N=89)	Black Males (N=106)	Black Females (N=261)	Black Males (N=115)	Black Females (N=318)
Helping Society						
Very Important	59	58	57	54	37	70
Important/Somewhat	41	42	41	46	58	30
Not important	0	0	2	0	5	0
Exercising Leadership						
Very important	21	21	35	30	28	28
Important/Somewhat	68	73	60	66	66	62
Not important	11	6	5	4	6	10
Recognition						
Very important	20	19	23	24	25	24
Important/Somewhat	60	72	63	66	69	61
Not important	20	9	14	10	6	15
JOB SETTING						
Lt. 25% co-workers of my race						
Like very much	6	11	7	12	6	15
Doesn't matter	78	63	62	54	77	71
Dislike	16	26	31	34	17	14
Race: Asset or Barrier to Occupational Aspirations						
Asset	43	51	43	55	44	58
Barrier	57	49	57	45	56	42
Major Field						
Education/Social Work/Nursing	0	30	5	22	10	47
Social/Behavioral Sciences	22	32	17	23	13	15
Business/Economics	29	23	20	26	38	22
Biol./Natural/Tech. Sciences	38	8	58	27	38	14
Other Fields	11	7	0	2	1	2

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Table 5 (continued)

Characteristics	White Colleges		Black Pvt. Colleges		Black Pub. Colleges	
	Black Males (N=37)	Black Females (N=89)	Black Males (N=106)	Black Females (N=261)	Black Males (N=115)	Black Females (N=318)
Most Important Reason for Major Choice						
Interesting	47	35	26	31	21	21
Good pay	3	10	5	1	5	2
Good job	14	0	20	15	20	13
Challenging	3	4	5	7	9	9
Able to help people	5	22	5	14	5	22
Other reasons	28	29	38	32	40	33
When decided on major						
Before college	38	49	46	55	41	59
1st year of college	19	14	22	17	22	15
2nd year of college	16	29	25	19	25	18
3rd year of college	27	8	7	9	12	8

*These percentages do not sum to 100 percent because each category represents a separate response which is coded (yes=1; versus no=0).

[a]Missing data, which was less than three percent in most instances, are not included in these percentages.

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Table 6

Family Background, Academic, and Other Characteristics of Black Students by Major Field in Predominantly White Public Colleges

(Percentages Reported)[a]

Independent Variables	Ed./Soc.Wk. Nursing Soc.Behav. Sci.Other	Business/ Economics	Biol./Nat./ Tech.Sci.
PARENTAL BACKGROUND:	Blacks (N=73)	Blacks (N=31)	Blacks (N=21)
Mother's Education			
High school not completed	20	23	15
High school completed	34	43	30
Some college	25	14	35
College completed	12	0	0
Graduate/professional	9	20	20
Not part of family	0	0	0
Father's Education			
High school not completed	32	50	20
High school completed	27	17	20
Some college	19	3	20
College completed	6	7	20
Graduate/professional	10	17	20
Not part of family	6	6	0
Parental Income			
Less than $15,000	25	17	5
$15,000 - $24,999	17	31	24
$25,000+	38	28	52
Don't know	20	24	19
CHILDHOOD INTERESTS:			
Reading			
Very much	57	32	33
Somewhat/A little	32	45	62
Not much/Not at all	11	23	5
Bldg. and Repairing			
Very much	7	17	14
Somewhat/A little	53	47	57
Not much/Not at all	40	36	29

Table 6 (continued)

Independent Variables	Ed./Soc.Wk. Nursing Soc.Behav. Sci./Other	Business/ Economics	Biol./Nat./ Tech.Sci.
	Blacks (N=73)	Blacks (N=31)	Blacks (N=21)
Science Projects			
Very much	14	13	33
Somewhat/A little	45	47	43
Not much/Not at all	41	40	24
EXTRA-CURRICULAR ACTIVITIES* IN HIGH SCHOOL			
Science Club	7	3	37
Honor Society	36	37	58
Math Club	3	0	11
Vocational Club	16	17	21
Liked Math in H.S.			
Very much	22	61	52
Somewhat/A little	41	32	43
Not much/Not at all	37	7	5
Liked Science in H.S.			
Very much	26	16	71
Somewhat/A little	45	65	19
Not much/Not at all	29	19	10
CHILDHOOD MODEL ASPIRANT*			
Homemaker	14	13	5
Business Person	27	55	29
Athlete	18	13	3
Doctor	44	19	57
Teacher	61	42	9
Scientist	6	10	48
High School Curriculum			
Vocational/Other	5	26	5
Academic	95	74	95
High School Science Taken*			
General Science	67	81	81
Biology	96	87	100
Chemistry	68	58	90
Physics	20	32	62

Table 6 (continued)

Independent Variables	Ed./Soc.Wk. Nursing Soc.Behav. Sci./Other	Business/ Economics	Biol./Nat./ Tech.Sci.
	Blacks (N=73)	Blacks (N=31)	Blacks (N=21)
High School Math Taken*			
General Math	60	71	76
Algebra	96	87	95
Advanced Algebra	48	58	71
Trigonometry	31	35	81
Calculus	5	10	24
General H. S. Grades			
A	27	20	52
B	65	67	38
C	8	13	10
D and below	0	0	0
H. S. Math Grades			
A	12	45	55
B	34	39	30
C	49	13	15
D and below	4	3	0
H. S. Science Grades			
A	18	26	57
B	49	55	33
C	33	19	10
D and below	0	0	0
Educational Expectations			
Don't expect to graduate	1	0	0
Grad. College	14	32	9
Master's	45	32	24
Ph.D. or other Prof. Degree	34	33	62
Don't know	6	3	5
JOB SETTING			
Lt. 25% co-workers of my race			
Like very much	5	3	0
Doesn't matter	69	78	80
Dislike	26	19	20
Race: Asset or Barrier to Occupational Aspirations			
Asset	40	43	85
Barrier	60	57	15

Table 6 (continued)

Independent Variables	Ed./Soc.Wk. Nursing Soc.Behav. Sci./Other	Business/ Economics	Biol./Nat./ Tech.Sci.
	Blacks (N=73)	Blacks (N=31)	Blacks (N=21)
Most Important Reason for Major Choice			
Interesting	35	45	42
Good pay	0	0	5
Good job	1	31	16
Challenging	0	7	11
Able to help people	29	0	0
Other reasons	35	17	26
When decided on major			
Before college	49	29	57
1st year of college	13	26	10
2nd year of college	30	19	19
3rd year of college	8	26	14

[a]Missing data, which was less than three percent in most instances, are not included in these percentages.

*The frequencies for these variable categories are based on affirmative responses (i.e., yes) only, and do not sum to 100.

Table 7

Family Background, Academic, and Other Characteristics of Black Students by Major Field in Predominantly Black Private Colleges (Percentages Reported)[a]

Independent Variables	Ed./Soc.Wk. Nursing Soc.Behav. Sci./Other	Business/ Economics	Biol./Nat./ Tech.Sci.
PARENTAL BACKGROUND:	Blacks (N=145)	Blacks (N=87)	Blacks (N=130)
Mother's Education			
High school not completed	15	19	10
High school completed	28	34	28
Some college	27	16	18
College completed	10	13	11
Graduate/professional	20	18	33
Not part of family	0	0	0
Father's Education			
High school not completed	26	21	26
High school completed	27	29	16
Some college	18	20	16
College completed	10	10	16
Graduate/professional	11	20	23
Not part of family	3	0	3
Parental Income			
Less than $15,000	30	35	26
$15,000 - $24,999	21	24	22
$25,000+	30	28	39
Don't know	19	13	13
CHILDHOOD INTERESTS:			
Reading			
Very much	45	45	45
Somewhat/A little	46	41	46
Not much/Not at all	9	14	9
Bldg. and Repairing			
Very much	9	13	23
Somewhat/A little	59	49	54
Not much/Not at all	32	38	23

Table 7 (continued)

Independent Variables	Ed./Soc.Wk. Nursing Soc.Behav. Sci./Other	Business/ Economics	Biol./Nat./ Tech.Sci.
	Blacks (N=145)	Blacks (N=87)	Blacks (N=130)
Science Projects			
Very much	9	9	37
Somewhat/A little	61	53	54
Not much/Not at all	30	38	9
EXTRA-CURRICULAR ACTIVITIES* IN HIGH SCHOOL			
Science Club	15	12	33
Honor Society	40	52	49
Math Club	9	14	13
Vocational Club	31	21	8
Liked Math in H.S.			
Very much	24	52	59
Somewhat/A little	76	48	41
Not much/Not at all	0	0	0
Liked Science in H.S.			
Very much	28	16	68
Somewhat/A little	72	84	32
Not much/Not at all	0	0	0
CHILDHOOD MODEL ASPIRANT*			
Homemaker	15	6	10
Business Person	35	68	25
Athlete	14	18	26
Doctor	35	15	58
Teacher	42	24	22
Scientist	15	7	46
High School Curriculum			
Vocational/Other	10	7	7
Academic	90	93	93
High School Science Taken*			
General Science	75	75	65
Biology	88	87	95
Chemistry	70	61	93
Physics	25	29	67

Table 7 (continued)

Independent Variables	Ed./Soc.Wk. Nursing Soc.Behav. Sci./Other	Business/ Economics	Biol./Nat./ Tech.Sci.
	Blacks (N=145)	Blacks (N=87)	Blacks (N=130)
High School Math Taken*			
General Math	68	49	52
Algebra	92	92	92
Advanced Algebra	55	64	66
Trigonometry	39	64	79
Calculus	11	17	18
General H. S. Grades			
A	22	42	41
B	62	49	54
C	15	9	5
D and below	1	0	0
H. S. Math Grades			
A	22	42	39
B	39	40	36
C	33	15	25
D and below	6	3	0
H. S. Science Grades			
A	21	26	49
B	47	58	42
C	29	16	9
D and below	3	0	0
Educational Expectations			
Don't expect to graduate	0	0	5
Grad. College	9	11	7
Master's	29	44	27
Ph.D. or other Prof. Degree	60	42	63
Don't know	2	3	1
JOB SETTING			
Lt. 25% co-workers of my race			
Like very much	3	3	0
Doesn't matter	69	72	56
Dislike	28	25	44
Race: Asset or Barrier to Occupational Aspirations			
Asset	51	50	52
Barrier	49	50	48

Table 7 (continued)

Independent Variables	Ed./Soc.Wk. Nursing Soc.Behav. Sci./Other	Business/ Economics	Biol./Nat./ Tech.Sci.
	Blacks (N=145)	Blacks (N=87)	Blacks (N=130)
Most Important Reason for Major Choice			
Interesting	32	20	33
Good pay	2	3	3
Good job	6	34	18
Challenging	2	7	11
Able to help people	23	0	5
Other reasons	35	36	30
When decided on major			
Before college	51	48	57
1st year of college	16	19	21
2nd year of college	23	24	17
3rd year of college	10	9	5

[a]Missing data, which was less than three percent in most instances, are not included in these percentages.

*The frequencies for these variable categories are based on affirmative responses (i.e., yes) only, and do not sum to 100.

Table 8

Family Background, Academic, and Other Characteristics of Black Students by Major Field in Predominantly Black Public Colleges (Percentages Reported)[a]

Independent Variables	Ed./Soc.Wk. Nursing Soc.Behav. Sci./Other	Business/ Economics	Biol./Nat./ Tech.Sci.
PARENTAL BACKGROUND:	Blacks (N=228)	Blacks (N=112)	Blacks (N=88)
Mother's Education			
High school not completed	28	24	22
High school completed	39	25	38
Some college	19	29	19
College completed	5	8	10
Graduate/professional	8	13	11
Not part of family	1	1	0
Father's Education			
High school not completed	42	22	35
High school completed	31	30	30
Some college	15	23	16
College completed	4	11	8
Graduate/professional	5	12	10
Not part of family	3	2	1
Parental Income			
Less than $15,000	28	30	25
$15,000 - $24,999	20	19	27
$25,000+	16	29	16
Don't know	36	22	32
CHILDHOOD INTERESTS:			
Reading			
Very much	42	37	31
Somewhat/A little	50	49	50
Not much/Not at all	8	14	19
Bldg. and Repairing			
Very much	14	20	32
Somewhat/a little	50	52	46
Not much/Not at all	36	28	22
Science Projects			
Very much	16	12	37
Somewhat/A little	50	52	53
Not much/Not at all	34	36	10

Table 8 (continued)

Independent Variables	Ed./Soc.Wk. Nursing Soc.Behav. Sci./Other	Business/ Economics	Biol./Nat./ Tech.Sci.
	Blacks (N=228)	Blacks (N=112)	Blacks (N=88)
EXTRA-CURRICULAR ACTIVITIES* IN HIGH SCHOOL			
Science Club	8	8	29
Honor Society	23	31	19
Math Club	5	9	12
Vocational Club	22	26	13
Liked Math in H.S.			
Very much	31	54	51
Somewhat/A little	69	46	49
Not much/Not at all	0	0	0
Liked Science in H.S.			
Very much	24	22	51
Somewhat/A little	76	78	49
Not much/Not at all	0	0	0
CHILDHOOD MODEL ASPIRANT*			
Homemaker	21	11	8
Business Person	39	69	31
Athlete	12	27	28
Doctor	24	18	46
Teacher	55	25	22
Scientist	9	11	51
High School Curriculum			
Vocational/Other	26	18	16
Academic	74	82	84
High School Science Taken*			
General Science	87	87	77
Biology	87	81	83
Chemistry	41	43	68
Physics	17	20	37
High School Math Taken*			
General Math	87	84	72
Algebra	85	90	95
Advanced Algebra	27	38	45
Trigonometry	16	32	58
Calculus	1	1	1

Table 8 (continued)

Independent Variables	Ed./Soc.Wk. Nursing Soc.Behav. Sci./Other	Business/ Economics	Biol./Nat./ Tech.Sci.
	Blacks (N=228)	Blacks (N=112)	Blacks (N=88)
General H. S. Grades			
A	10	13	11
B	62	68	60
C	28	19	28
D and below	0	0	1
H. S. Math Grades			
A	17	27	26
B	36	45	48
C	42	26	24
D and below	5	2	2
H. S. Science Grades			
A	8	14	22
B	50	47	55
C	38	38	23
D and below	4	2	0
Educational Expectations			
Don't expect to graduate	1	2	0
Grad. College	21	29	16
Master's	48	39	31
Ph.D. or other Prof. Degree	26	28	45
Don't know	4	2	8
JOB SETTING			
Lt. 25% co-workers of my race			
Like very much	6	4	3
Doesn't matter	82	77	82
Dislike	12	19	15
Race: Asset or Barrier to Occupational Aspirations			
Asset	59	50	52
Barrier	41	50	48
Most Important Reason for Major Choice			
Interesting	19	16	30
Good pay	1	11	0
Good job	6	36	14
Challenging	6	12	12
Able to help people	30	1	5
Other reasons	38	24	39

Table 8 (continued)

Independent Variables	Ed./Soc.Wk. Nursing Soc.Behav. Sci./Other	Business/ Economics	Biol./Nat./ Tech.Sci.
	Blacks (N=228)	Blacks (N=112)	Blacks (N=88)
When decided on major			
Before college	57	49	56
1st year of college	15	21	17
2nd year of college	19	23	17
3rd year of college	9	7	10

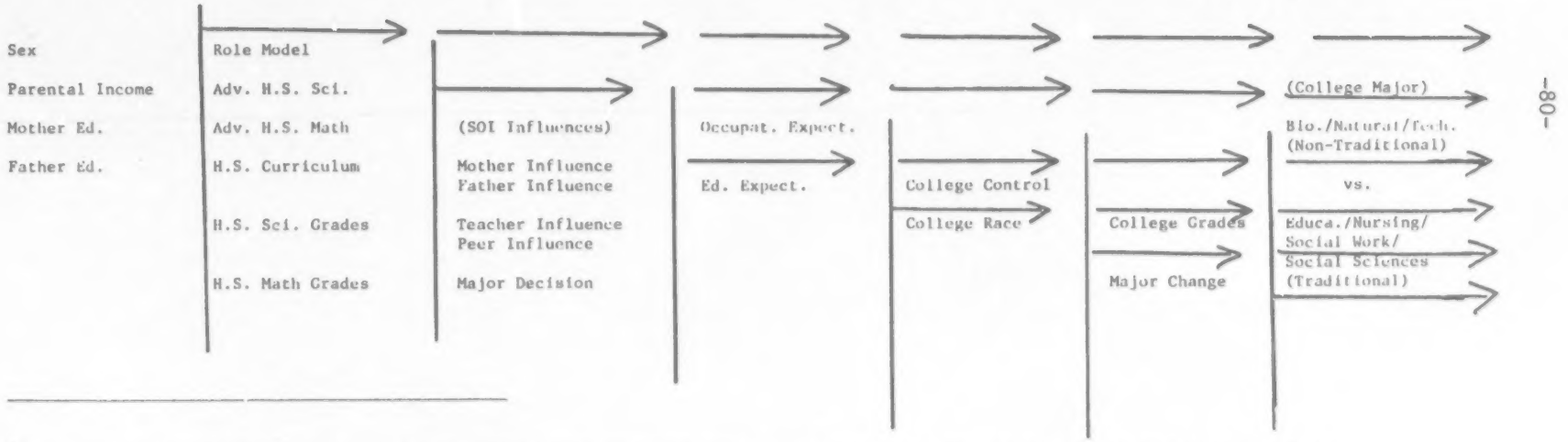
[a]Missing data, which was less than three percent in most instances, are not included in these percentages.

*The frequencies for these variable categories are based on affirmative responses (i.e., yes) only, and do not sum to 100.

APPENDIX B

Figure 1-B

Determinants of Black College Students' Major Field Choice[a]



[a]The causal relationships among independent variables within panel are not examined because the primary interest is in the impact of the independent variables on the major dependent variable--college major.

Table I-B

Initial Regression Model of Black Students' College Major Choice-Total Sample (N=915)[a]

Sex	.169[b]
Parental Inc.	.041*
Father Ed.	-.031*
Mother Ed.	.000*
Role Model	-.041*
Adv. Sci.	.220
Adv. Math.	.065
H.S. Curriculum	.004*
H.S. Sci. Grades	.168
H.S. Math Grades	.007*
Mother Influ.	-.034*
Father Influ.	.002*
Teacher Influ.	-.029*
Peer Influ.	-.081*
Major Decision	-.084*
Occupat. Expt.	.322
Ed. Expt.	-.017*
Collg. Control	-.043*
Collg. Race	-.114*
Collg. Grades	-.107
Major Change	.003*
R^2	.331

[a]Coefficients are standardized regression coefficients.

[b]Analysis based on SPSS subprogram regression option Pairwise Deletion. The number of cases (N=915) is based on the N for the major dependent variable--major field choice.

*Coefficients (unstandardized counterpart) are less than twice their standard error.

APPENDIX C

Table 1-C

Inter-Item Correlations, Means and Standard Deviations For Total Black Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1) Sex	--												
2) Father Ed.	.029	--											
3) Mother Ed.	.043	.594	--										
4) Adv. H.S. Sci.	.171	.168	.129	--									
5) Adv. H.S. Math	.141	.220	.196	.421	--								
6) H.S. Math Grades	-.010	.014	.038	.127	.368	--							
7) H.S. Sci. Grades	.010	.084	.048	.290	.328	.419	--						
8) Ed. Expect.	.084	.164	.181	.211	.221	.036	.220	--					
9) Occpt. Expect.	.193	.221	.200	.188	.224	.130	.189	.348	--				
10) Colly. Control	.031	.203	.193	.281	.350	.121	.239	.269	.288	--			
11) Colly. Race	.017	-.014	-.042	.047	.032	-.018	.054	-.035	-.012	-.249	--		
12) Colly. Grades	-.058	.072	.074	.079	.150	.268	.276	.264	.172	.049	-.058	--	
13) Colly. Major	.274	.119	.102	.359	.289	.147	.169	.169	.409	.204	-.081	.024	--
$\bar{X}$	.279	2.508	2.688	.461	.329	3.891	3.913	3.249	72.576	.134	1.409	2.654	.513
S.D.	.449	1.955	1.984	.393	.315	.844	.750	.755	13.543	.341	.492	.957	.500

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Table II-C

Inter-Item Correlations, Means and Standard Deviations for Black Males (Above Diagonal) and Black Females (Below Diagonal)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(Black Males) $\bar{X}$	S.D.
1) Father Ed.	--	.616	.107	.047	-.118	.104	.118	.202	.158	.096	-.005	-.025	2.756	2.023
2) Mother Ed.	.584	--	.144	.189	.008	.076	.083	.148	.184	-.029	-.018	-.056	2.826	2.060
3) Adv. H.S. Sci.	.181	.115	--	.417	.124	.288	.164	.233	.272	.038	.132	.159	.570	.409
4) Adv. H.S. Math	.280	.194	.482	--	.440	.425	.093	.166	.277	.043	.132	.170	.400	.305
5) H.S. Math Grades	.070	.051	.132	.347	--	.455	.087	.181	.114	.056	.256	.141	3.879	.864
6) H.S. Sci. Grades	.072	.037	.297	.296	.404	--	.241	.320	.271	.117	.348	.172	3.926	.735
7) Ed. Expect.	.176	.216	.217	.257	.018	.215	--	.434	.142	.063	.378	-.070	3.351	.774
8) Occpt. Expect.	.208	.208	.130	.214	.115	.148	.310	--	.255	.000	.348	.161	76.835	12.361
9) Collg. Control	.222	.196	.281	.377	.124	.225	.318	.295	--	-.224	.018	.040	1.434	.497
10) Collg. Race	-.064	-.049	.047	.025	-.049	.029	-.076	-.021	-.261	--	.022	-.074	.143	.351
11) Collg. Grades	.090	.075	.088	.130	.224	.196	.210	.162	.080	-.128	--	.043	2.573	1.027
12) Collg. Major	.191	.126	.184	.293	.312	.268	.048	.411	.185	-.101	.038	--	.753	.432
(Black Females)														
$\bar{X}$	2.412	2.636	.420	.301	3.898	3.909	3.209	70.986	1.400	.130	2.685	.419		
S.D.	1.921	1.956	.379	.315	.836	.756	.744	13.640	.490	.337	.928	.494		

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Table III - C

Inter-Item Correlations, Means, and Standard Deviations for Blacks in Predominantly White Colleges

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1) Sex	--											
2) Father Ed.	.257	--										
3) Mother Ed.	.059	.476	--									
4) Adv. H.S. Sci.	.182	.252	.124	--								
5) Adv. H.S. Math	.169	.208	.183	.556	--							
6) H.S. Math Grades	.101	.056	-.150	.318	.432	--						
7) H.S. Sci. Grades	.106	.295	.073	.429	.391	.521	--					
8) Educ. Expect.	.235	.363	.155	.270	.253	.161	.196	--				
9) Occupt. Expect.	.237	.321	-.006	.159	.198	.321	.292	.400	--			
10) Collg. Control	.147	.289	.072	.317	.411	.243	.367	.319	.364	--		
11) Collg. Grades	.133	.215	.142	.266	.221	.280	.262	.429	.286	.019	--	
12) Collg. Major	.342	.093	.005	.169	.247	.441	.261	.026	.338	.166	.084	--
$\bar{X}$	.294	2.442	2.513	.500	.349	3.864	4.016	3.186	72.248	1.095	2.452	.416
S.D.	.457	1.964	1.890	.385	.318	.855	.729	.773	12.301	.295	.840	.495

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Table IV - C

Inter-Item Correlations, Means and Standard Deviations for Blacks in Predominantly Black Private (Above Diagonal) and Public (Below Diagonal) Colleges

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(Private College Blacks) $\bar{X}$	S.D.
1) Sex	--	.015	.038	.178	.071	-.033	.000	-.030	.146	-.097	.220	.289	.454
2) Father Ed.	.096	--	.626	.069	.188	.027	.009	.023	.177	.039	.104	2.924	2.081
3) Mother Ed.	.043	.554	--	.044	.146	.128	.049	.086	.196	.054	.030	3.143	2.104
4) Adv. H.S. Sci.	.160	.146	.105	--	.377	.094	.236	.057	.142	.006	.245	.584	.373
5) Adv. H.S. Math	.203	.137	.125	.416	--	.393	.300	.079	.118	.115	.265	452	.317
6) H.S. Math Grades	-.027	-.068	-.039	.043	.289	--	.473	.002	.064	.261	.226	3.997	.863
7) H.S. Sci. Grades	-.024	-.010	-.063	.182	.198	.313	--	.114	.126	.291	.276	4.104	.746
8) Educ. Expect.	.120	.138	.192	.193	.183	-.033	.214	--	.281	.236	.045	3.473	.681
9) Occupt. Expect.	.220	.116	.170	.085	.150	.062	.086	.286	--	.182	.446	76.831	13.333
10) Collg. Grades	-.062	.001	-.019	.113	.100	.193	.197	.220	.286	--	.090	2.730	.977
11) Collg. Major	.359	.187	-.130	.161	.284	.191	.155	.052	.201	-.078	--	.599	.491
(Public College $\bar{X}$	.266	2.142	2.331	.345	.219	3.808	3.720	3.069	68.880	2.647	.467		
Blacks) S.D.	.442	1.749	1.817	.379	.271	.815	.712	.761	13.002	.965	.499		

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